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Smart Growth and New Urbanism: The Implementation of Development Plans Eight Years after Hurricane Katrina on the Mississippi Gulf Coast

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Smart Growth and New Urbanism: The Implementation of Development Plans Eight Years after Hurricane Katrina on the Mississippi Gulf Coast

by

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Abstract

After Hurricane Katrina hit the Mississippi Coast, Master Concept Plans (MCPs) that emphasized smart growth and new urbanism were created to reduce sprawl on the coast. This study seeks to find the reality of these plans by examining what has actually been implemented from the MCPs eight years after Hurricane Katrina. This study was conducted in the Mississippi coastal cities of Long Beach and D'Iberville. The MCPs were georeferenced, digitized, and overlaid on top of current land use parcel data using a Geographic Information System (GIS). Parcels were selected and categorized based on each proposed plan and compared to current land use coding to determine the state of implementation and noncompliance of the MCPs. Results indicate that the majority of implementation of the proposed plans were already in place before the MCPs, while the least implemented areas, Civic Spaces and Hotel/Casinos, still need to be converted. The total cost to buy parcels that did not match the proposed zone is higher than the city's annual budgets creating a financial barrier to implementation. The results show that the MCPs are not working as planned and are not practical because the partial recovery along the coast has locked parcel land use making the MCPs difficult to implement in their entirety, while leapfrogging areas are inadvertently causing development outside the MCP areas.

Key Words: New Urbanism, Smart Growth, Urban Geography, Urban Development, Mississippi Gulf Coast

Dedication

Dedicated to My Meme, Billie Wright,

who loved the Mississippi Gulf Coast more than any person I know.

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I want to thank my advisor David H. Holt whose knowledge and guidance have helped me with my research and thesis writing; I greatly appreciate his continued support and encouragement throughout the whole process. I also want to thank my other geography professors, Dr. Gregory Carter, Paul Barnes, and Eric McGregor who helped contribute to my knowledge of geography and this paper. Finally, I want to thank my friends and family who have continuously supported me throughout this process.

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Chapter 1: Introduction

Urban sprawl continues to be a growing problem in the United States. Urban sprawl is defined as low density development that sits on the edge of cities and towns (Hong, Nigh, Schulz and Zhou 2012). According to Sultana and Weber (2013), cities started off as compact and close together with all amenities being within a walkable distance. As transportation options such as streetcars and automobiles became more prevalent, people built their houses further away from city centers. Further, roads and interstates were built that allowed easier access to city centers, so people moved away from industrial centers. This movement creating even more suburbs, so retail stores began to leave city centers and were built closer to where people with higher incomes lived. This development created the modern city system (Sultana and Weber 2013).

Urban development is important to study because there is a need to understand the growth of cities in order to create policies that will help curtail sprawl but still allow cities to grow in an economical manner. There are few laws or policies in place that prevent sprawl from occurring. This lack of regulation causes problems as poorly planned developments can contribute to traffic problems, loss of natural resources, and even economic problems (Hong *et al.* 2012). Recently though, there has been an increase in the push for ideas to combat urban sprawl: ideas such as smart growth and new urbanism.

Smart growth and new urbanism both have the goal of creating walkable neighborhoods that reduce the consumption of natural resources by reducing the need for automobile transport for basic living and social necessities (Walmsley 2006). One of the goals of smart growth and new urbanism is to encourage urbanization to be more

compact instead of sprawled out. However, more research is needed in order to see if these sustainable growth plans are working because, if they are not, a more effective way of combating urban sprawl needs to be created. In the past few years, researchers have used models that they have created to show that these ideas can and have worked. However, critics claim that smart growth ideas are not working or are not plausible. Certain obstacles such as people not wanting to live in compact cities and developers going outside city limits in order to avoid development policies prevent smart growth from being implemented (Downs 2005; Beste 2010).

Hurricane Katrina ravaged the Mississippi Gulf Coast on August 29, 2005. The path of destruction from Hurricane Katrina allowed an opportunity for this area to recover in a way that was an improvement over pre-Katrina developments. A few goals of smart growth and new urbanism include strengthening development around existing communities, creating a sense of place among citizens, and providing a variety of housing choices (Goldberg 2005). These goals were appealing to Mississippi's governor, Haley Barbour, because he thought they were what the coast needed after Hurricane Katrina. Development plans created included smart growth and new urbanism requirements such as building materials, land use, street design requirements, and architecture. The reality of the situation is that many of these plans have not been implemented or were not realistic for implementation. For example Griffioen (2009), found that the Long Beach tax base could not provide the required amount of money needed to buy the parcels of land for the proposed zoning changes (Griffioen 2009). Another obstacle for the implementation of these new ideas on the coast was that

the local officials believed the plans were '... just pretty pictures' (Evans-Cowley and Gough 2009).

This paper seeks to study the implementation of smart growth and new urbanism on the Mississippi Gulf Coast. The coastal area creates an interesting scenario for urban development research because of the damage caused by Hurricane Katrina and the extensive Master Concept Plans (MCP) created to help with rebuilding this area. The reason the two study cities were chosen was because Long Beach, Mississippi, has implemented several of the new urbanism principles in their downtown area and D'Iberville, Mississippi, currently has a lot of construction in place that is attempting to implement new urbanism.

The MCPs created after Hurricane Katrina were superimposed onto a current map of the city using a Geographic Information System (GIS). The plans were then compared with the current land use and zoning in the cities to evaluate any changes or adherence to the MCPs. This study will show the realities of smart growth and new urbanism ideas on the coast. Some questions that this paper attempts to answer are how much of the plans have been implemented, what portions of the plans have been implemented, and if there are any common occurrences from the plans between the two cities that are not being implemented. Urban planners across the Mississippi coast and even the United States can take the findings of this research and include them in development plans for their own cities to help curtail urban sprawl.

Chapter 2: Literature Review

Urban Sprawl

Urban sprawl is low density development that sits on the edge of cities and towns that contributes to traffic problems, loss of natural resources, and economic problems (Hong, *et al.* 2012). The long-term effects of this kind of development can be devastating in many ways. For instance, the loss of land from infrastructure being built can be catastrophic. Runoff from roads can lead to pollution of the surrounding land and water. Sprawl can lead to costly expansions and upkeep of roads, sewage systems, and other infrastructure. Urban sprawl also leads to higher traffic congestion and longer driving distances because people live outside of cities and must drive farther to work. Further, this congestion and increased commuting times contribute to greenhouse gas emissions (Downs 2005). The greenhouse gas emissions further environmental damage.

One reason that suburbs are popular is because most people generally do not like living in high density developments. People also have a perceived sense of higher safety when they live further away from their neighbors and have a higher sense of satisfaction with the economic homogeneity that comes with living in the suburbs (Lovejoy, Handy and Mokhtarian 2010). Further, people are staying in suburbs due to emotional investment in the neighborhood (Rogers and Sukolratanametee 2009). This emotional investment suggests that people are comfortable with suburbs and do not want to leave them. The attachments to suburbs and consequent beliefs, such as their perceived safety, help build resistance to smart growth and new urbanism.

Sustainable Communities

Ideas to help combat urban sprawl started appearing in the late 1970s (Haeuber 1999; Walmsley 2006). Sustainable communities encourage cities to be more compact through mixed land use, walkable neighborhoods, public transportation, and access to green spaces. Mixed land use can include buildings that contain both residences and businesses. The neighborhoods are walkable to lower the dependence on cars and public transport. Green spaces, such as community parks or forests, are used to help conserve natural areas in the city. These green spaces allow people to have access to nature in their cities. Some of these ideas have been implemented into policies and laws from small towns like Seaside, Florida to entire states like Maryland. Smart growth and new urbanism are two well-known ideas that are currently in place that fall under the umbrella of sustainable communities.

Smart growth is development that takes environmental, social, and other factors into account with development that takes place in existing infrastructure (Walmsley 2006). Smart growth goals include providing a variety of transportation options, a range of housing choices, and walkable neighborhoods (Goldberg 2005). Maryland implemented the Smart Growth Initiative in April 1977 to help manage current growth. The Economic Growth, Resource Protection, and Planning Act came from this initiative and states that comprehensive plans prepared by local jurisdictions were the best way to find priorities for growth and conservation (Haeuber 1999). Two other policies that Maryland has are *The Rural Legacy Programme*, in which the government buys out development rights to farmland and natural areas in order to preserve them, and the Priority Fund Areas (PFAs), in which government directs spending on existing structure

(Daniels 2001; Maryland Department of Planning *n.d.*). Similarly, Oregon created 'Urban Growth Boundaries' that have been deemed suitable for developments for the next 20 years and infrastructure like sewer and water cannot be located outside of these areas (Daniels 2001).

Another idea that formed to help combat sprawl is new urbanism, which is the design of the neighborhoods to help with environmentally responsible developments (Garde 2004). According to Walmsley (2006), new urbanism states that "streets are to be a network; blocks are to be square, rectangular or irregular." Building lots are to surround all directions of the street. There should be a mix of open spaces and buildings, each with its own landscape and architectural requirements. Neighborhoods that follow new urbanism design are to be no bigger than 200 acres and there should be no more than a five minute walk from the edge of the town to the center (Walmsley 2006). An example of new urbanism is the town of Seaside, Florida (Figure 1). Robert Davis designed Seaside, which is only 80 acres, in 1981 (Seaside n.d.). The streets are designed in a radiating street pattern with pedestrian alleys and open spaces located throughout the town (Walmsley 2006). There are tennis courts, a community pool, an amphitheater for community gatherings, and a charter school (Seaside n.d.) (Figure 1).

These locations have implemented ideas from both smart growth and new urbanism. They have provided a framework in which cities trying to implement sustainable development, such as Long Beach and D'Iberville, can follow. The framework includes ideas and policies that encourage growth in existing infrastructure such as the urban growth boundaries as seen with Oregon, and city design and layout, as seen with Seaside, Florida. The history of these locations shows that actual

implementation of smart growth and new urbanism has taken place and can provide examples of what works. They also provide examples of unforeseen problems that may occur, such as in Seaside, Florida, where housing prices are being driven higher due to demand instead of having a variety of housing prices for residents to choose (Yancey 2012).

Smart Code

Smart Code was created by Duany Plater-Zyberk & Co. as a planning code that uses a combination of smart growth and new urbanism principles (Duany and Talen 2001). Smart Code is a transect-based zoning code with each t-zone representing different levels of urban density and land use. The transects allow for a consistent organization of the zoning (Duany and Talen 2001). Figure 2 shows the different t-zones to give an example of how they are laid out. There are six zones that span from natural to urban center (Duany and Talen 2001). Each zone has its own land use requirement and design requirements. The land use requirements include aspects of residential, commercial, or mixed. Design requirements include how far buildings are set back from the road, parking layout, street design, and architecture (Duany and Talen 2001).

The zone descriptions put forth in the official Smart Code Manual were established by Duany, Wright and Sorlien (*2006)* and are as follows: Zone T1 is considered the natural zone. No buildings can be built here due to reasons such topography or hydrology. Zone T2 is the rural zone. There can be sparse settlement throughout the zone. This zone also has agriculture land, grasslands, woodland, and irrigable deserts. Zone T3 is the sub-urban zone, which consists of low density residential

areas with large blocks to help accommodate the natural conditions. Zone T4 is the general urban zone. T4 is primarily a residential area with some mixed land use. It has single houses, row houses, and side yards. The streets are mainly medium size and building setback varies. Zone T5 is the urban center zone and has a high density mixed land use. The building types in this zone accommodate retail, offices, row houses, and apartments. The streets are organized and have wide sidewalks with the buildings set close together. Zone T6 is the urban core zone. This area represents high urban density and has the greatest variety of uses. It contains civic buildings with regional importance. Buildings are generally set close to the roads. T6 examples are places like downtown Atlanta, Georgia, and Los Angeles, California (Duany, *et al.* 2006). Smart code was the basis for many of the Master Concept Plans that were created after Hurricane Katrina for the Mississippi coastal cities. Smart code was used to incorporate sustainable growth ideas in MCPs across the Mississippi Coast because it is a zoning code that allows for integration of smart growth and new urbanism. Long Beach used t-zones in the original MCPs and D'Iberville eventually adopted the zoning ordinance in downtown areas (Ayers/Saint/Gross Architects and Planners, *et al* 2008; City of D'Iberville *n.d.*).

Smart Growth

Hong, *et al.* (2012) used Landsat satellite imagery from the years 1980, 1990, and 2000. The researchers used a sub-pixel classification system in ERDAS Imagine to determine impervious surfaces in the images. Urban growth was measured by subtracting each year's growth from each later one. The results showed that there was more growth

in rural areas than in urban areas and that the two types of land most affected by the growth were grassland and cropland (Hong, *et al.* 2012).

Bagtzoglou, *et al.* (2012) obtained data that included a socioeconomic index, smart growth index, and environmental index for New Haven, Connecticut, in order to find brownfields, which are obsolete and vacant sites with the most potential for redevelopment. Numerical weights were applied to the indices to determine brownfield locations. The results showed that there were ten potential sites for redevelopment in the city and were visualized in a GIS system (Bagtzoglou, *et al.* 2012).

Banai (2005) used Expert Choice, a decision support software, to run an analytical hierarchy process (AHP) to estimate the likelihood of certain future urban events for possible sustainability in Piperton, Tennessee. The criteria in the AHP were given numerical weights that would be used to determine the sustainability score. The results were then coupled with a GIS in order to create thematic maps. Banai found that the land use that had the highest chance of sustainability was a residential estate with a traditional neighborhood design and commercial use close behind. Undeveloped land had the lowest sustainability score (Banai 2005).

Preuss and Vemuri (2004) created a model that tested the effectiveness of the smart growth policies in Maryland. The model uses a combination of natural space sector, residential space sector, non-residential space sector, and the population space sector. It also includes environmental health, economic health, and social health quality of life indices. The models were run along with the indices in order to see the predicted changes up to the year 2050. The scenarios that favored the environment protected more natural space and the scenarios for development showed much greater residential land use

but less protected land. The results also show that quality of life is higher in environmental models (Preuss and Vemuri 2004).

Criticisms of Smart Growth and New Urbanism

Some people have criticized smart growth and its counterparts. One complaint is that smart growth policies are normally only created through the city government and that developers who are resistant to smart growth decide to use cheaper land outside the city, which leads to leapfrog developments (Downs 2005). Leapfrog developments are discontinuous developments that skip over land, leaving empty land between the two developments (Weitz and Moore 1998). The leapfrogging contributes to more urban sprawl because they are building outside city limits in areas that were previously rural and adding more infrastructures: this is the exact opposite of smart growth's goal. A study by Rebecca Lewis found that despite the encouragement to develop inside Maryland's PFAs, development inside the zones went down while it increased outside the zone (Lewis, Knaap and Sohn 2009). Another criticism of smart growth is that a majority of people have a "not in my backyard" attitude because they do not want increased development and population near them (Beste 2010). People also have a perception that higher density areas are not as safe (Lovejoy, *et al.* 2010). One more criticism about smart growth is that the policies can be expensive to implement. It was found that the city of Long Beach, Mississippi, did not have the tax base to buy out lots from the owners in order to change the zoning (Griffioen 2009). Another complaint is that smart growth actually leads to higher housing prices even though it is supposed to create housing prices that are affordable for all income levels (Downs 2005). According to an interview

conducted by *USA Today* with Davis, the creator of Seaside, the reason that the housing prices in Seaside increased so much is because Seaside became desirable and 'people who are rich were able to outbid the others'. This price increase is contrary to the original vision which focuses on a diverse community that even school teachers could afford (Yancey 2012). One of the biggest selling points about smart growth is that it has a variety of housing prices so that everybody has a chance to live in these mixed development areas. However, if the prices are driven higher due to demand then people with a lower income will have a decreased opportunity to live in these types of areas. These criticisms are very important because it helps to understand some of the issues that Long Beach and D'Iberville may come across, or already have come across, while trying to implement the MCPs. Currently neither Long Beach nor D'Iberville have the money to implement the proposed zone from the plans in their downtown areas. Both cities could eventually see developers attempt to build in surrounding areas that do not have stringent building plans. The issues that other cities have incurred also allow for an understanding as to why smart growth and new urbanism are not currently being implemented on the Mississippi coast.

Hurricane Katrina and New Development

Hurricane Katrina formed on August 23, 2005. It first made landfall in south Florida on August 25, 2005, as a category 1 hurricane but lost minimal strength because it was only over land for a short amount of time. The storm gained more strength and eventually became a category 5 hurricane when it was over water in the Gulf of Mexico heading toward the Mississippi coast. It made landfall along the gulf coast in Louisiana

on August 29, 2005, as a category 3 storm (National Oceanic and Atmospheric Administration [NOAA], 2005). The damage along the entire coastline was tremendous. It was estimated to exceed $100 billion (NOAA 2005).

Due to the damage that the hurricane caused along the Mississippi coast, new opportunities to rebuild improved cities in this area arose. Governor Haley Barbour created the Governor's Commission on Recovery, Rebuilding, and Renewal. The commission teamed up with the Congress for New Urbanism in order to help create plans that would allow the coast to recover in such a way that it could grow in a sustainable and economical manner. Jordan and Javernick-Will (2013) states that there are many definitions of recovery that range from returning to normalcy to increasing community resilience to future disasters. Jordan even mentions that cities go through a two-part recovery including returning to pre-disaster functions short term and focusing on community improvement in the long term (Jordan and Javernick-Will 2013). The development plans for the Mississippi coast were created in such a way that would allow the coast to rebuild to "better" than pre-Katrina conditions and be more appealing to outsiders. These plans also included information on ways in which to rebuild so the areas could be more resilient against natural disasters. The development plans, called Master Concept Plans (MCPs), were created by a team of architects, town designers, engineers, and people close to the city. The teams created the MCPs within a month. There were plans on the regional level and on the local level. The regional plan mainly included connectivity between towns (Mississippi Renewal Forum 2005).

MCPs were created for all the cities along the Mississippi coast. Some cities even created plans that were more comprehensive at later dates (Ayers/Saint/Gross Architects

and Planners, *et al.* 2008). These plans include mixed land-use, walkable neighborhoods, redesigning the road networks, and development codes including smart code (Mississippi Governor's Commission 2005; Ayers/Saint/Gross Architects and Planners, *et al.* 2008). Long Beach and D'Iberville developed MCPs of their own and have started implementing these MCPs (Figures 3 & 4).

Evans-Cowley and Gough (2009) did a research study on the realities of the new urbanism plans on the Mississippi Coast. The researchers interviewed local citizens and officials and created evaluation schemes to determine how many new urbanism principles were in the MCPs. They found that some cities had incorporated more new urbanism ideas in their plans than other cities, and that a few unincorporated cities such as Henderson Point, Pineville, and Saucier had incorporated the most new urbanism ideas. Researchers also found that the plans identified more new urban population and housing characteristics, but identified less natural habitats and agricultural characteristics. After talking to city officials, they found that the officials saw these plans as unrealistic because they were '… busy worrying about current application for rezoning…' and that the plans were just 'pretty pictures' (Evans-Cowley and Gough 2009).

The Hong, *et al.* (2012) study shows that development on rural land is occurring at a greater rate than in urban areas. The loss of rural land is a concern because the rural lands are being developed at a faster rate than urban areas are being redeveloped. Preuss and Vemuri (2004) show that quality of life is better when protection of the environment is a high priority. There have been models created that show smart growth policies that can work and other models that show areas that have the most potential for a successful redevelopment (Preuss and Vemuri 2004; Bagtzoglou 2012). These two results suggest

that it is not a waste to implement smart growth and new urbanism policies. However, Evans-Cowley and Gough (2009) reveal that on the Mississippi coast the plans are not realistic and are not accepted by locals.

The development plans that were created for Long Beach, Mississippi, and D'Iberville, Mississippi, have potential. However, the criticisms about smart growth and new urbanism policies where they have been implemented, such as Seaside, Florida, the states of Oregon and Maryland, and even on the Mississippi Coast, have shown that most of the time these ideas do not work as predicted. The question is this: Can the development plans that were created for Mississippi coastal cities work, or are they just ideas that look good on paper but will never actually be implemented?

Chapter 3: Thesis Statement

This thesis will evaluate Long Beach, Mississippi, and D'Iberville, Mississippi, to determine the realities of smart growth and new urbanism on the Mississippi Gulf Coast by comparing current land use to proposed zoning created after Hurricane Katrina to see how much of the MCPs has been implemented. The study will determine what from the proposed zoning plans has been implemented, or if the plans have been implemented at all. The results from each city will then be compared to see if there is any common occurrence in what has actually been implemented from the proposed plans.

Chapter 4: Methodology

The city of Long Beach, Mississippi and downtown D'Iberville, Mississippi are the study areas. The D'Iberville study area is limited because they only have a high-quality MCP for the downtown area and not the whole city. The first step was acquiring 6 inch-resolution, aerial imagery from February 2012. The master concept plans (MCP), which show the proposed zones of each city, were obtained from the cities' websites (Figures 3 and 4). These MCPs are in PDF format, so they were converted into a .PNG file format using the snipping tool from Windows 7. Land use data for each city was obtained from Harrison County. The land use data consist of parcel geometry and land roll data. The land roll data contain a Feature Identification number (FID) which ties it to the parcel data, creating the land use data. The land use data contain information on current land use, such as Residential, Commercial, Parks and Recreations, etc. It is this land use classification that was used for the study. A GIS system was used in order to run a comparison. A GIS is a database management system that stores spatial data and analysis can run the data to answer questions and make maps. The GIS program Arc Map 10.x, was used for this study.

A geodatabase was created for both D'Iberville and Long Beach. The aerial imagery was uploaded into the corresponding cities' geodatabase. The land use parcel data was then uploaded into Arc Map. Each city's parcels were selected and then exported into the corresponding city's geodatabase. The .PNG maps showing the proposed zoning were uploaded into Arc Map. The .PNG image was georeferenced to the land use parcel data. The .PNG maps were digitized into a feature class based on the proposed zoning and categorized. Each proposed zone feature class was then added into

the respective city's geodatabase. Next, the proposed zone feature class was overlaid on top of the land use parcels. The proposed zones from the MCPs were displayed differently based on their classification. This classification was used to help visually select the land use parcel data that fell within a proposed zone. The selection was then exported into its own feature class. This process was repeated until all of the land use parcels were classified according to the proposed zones. A field was created and the proposed zoning change was inserted into the field. The field was called t-zone for Long Beach and smart growth for D'Iberville. Finally, each of the individual proposed zone feature class was then merged into one feature class. The merging allowed for the land use parcel data to be tied to the correct proposed zone and a change analysis to be run on all of the parcels at the same time.

Since current parcel land use was being used for the comparison to the proposed zone, a method to compare the current usage to the proposed zone was needed. A coding scheme was created between the land use parcel data and the proposed zone. An arbitrary number was then given to proposed zone areas and current land use that were considered similar. The Select By Attributes tool was used in the attribute table to select current land use code that matched the proposed zoning code. The query used was current land use code = proposed zone code. The parcels where the codes matched were exported as their own layer. The selection was then flipped to select parcels that did not match, and these parcels were exported as their own layer.

For Long Beach, areas that were natural land with no buildings on them were coded as '1'. Natural land included the Agriculture and Land and Forest from the land use and T1 and T2 from the proposed zone. Areas that were considered as parks or public

areas were coded as ‘2’. This includes the Camp and Resorts, Cultural and Parks, and Recreation and Entertainment from the land use parcel data and Civic Space from the proposed plan. Areas that were considered to be primarily residential were coded as ‘3’. This included Residential from the land use data and T3 through T4 (3) from the proposed plans. Areas that were primarily for business (providing goods and services to people) or commercial purposes were coded as ‘4’. This selection included categories such as government, commercial, and manufacturing from the land use parcel data and T5 (1) and T5 (2) from the proposed zones. Areas that were for educational purposes were coded as ‘5’. The Long Beach land use parcel had a category that was uncategorized and the Long Beach MCP had a section that had no data. These areas could not be compared to each other, but had to be taken into account when running the analysis (Table 1).

For D’Iberville, areas considered natural, open space, or recreational (for the family use) were coded as ‘1’. This selection included Camp and Resort, Land and Forest, and Recreation and Entertainment from the land use parcel data and Green/Wetlands from the proposed zones. Areas that were for commercial purposes were coded as ‘2’. This selection included Commercial and Utility and Communication from the land use parcel data and Commercial from the proposed zone. Areas that were primarily for residential purposes were coded as ‘3’. This selection included Residential from the land use data and High Density Residential, Low Density Residential, and Live/Work from the proposed zoning. Live/Work is a primarily residential area that has businesses attached to the house but employs no more than four or five people (Mississippi Governor's Commission 2005). Since Live/Work is considered a primarily

residential area according to the proposed zone, it was coded as residential. Areas that were for providing goods and services, such as businesses or government were coded as '4'. Good and services categories include Services, Religion, and Government from the land use parcel data and Mixed Use, Hotel/Casino, and Civic Building from the proposed zone. D'Iberville also had some areas on the MCP that were marked, but were uncategorized. These had to be considered when making the conversion chart (Table 2).

Both cities had parcels that did not match the proposed zoning. It was noted that the land use parcel data only contained a description of the land. Parcels having no houses on them were marked as Land and Forest (or had a similar description). In Long Beach, the categories from the MCP that were T3, T4-1 through T5-2, but were categorized as Land and Forest in the land use data were marked 'Parcel Verification Needed'. In D'Iberville, the parcels from the MCP that were Low Density Residential, High Density Residential, Live/Work, or Commercial, but were categorized as Land & Forest in the land use data were also marked as need to be verified. The tax rate was used for the parcels that needed to be verified. Data from the land use study was uploaded that contained information on the parcel's assessed value and total value. These were then used in the following calculation to obtain the Tax Assessment Ratio:

(Tax Assessment/Total Value) * 100

To be able to perform this equation correctly, a field was created that obtained a copy of the total parcel value. The parcels that had a total value of zero were changed to -99 since it is impossible to divide by zero. A new field was then created for the tax rate called TAXRATE. A field calculation was done in TAXRATE using the previously

mentioned calculation. The parcel data containing the tax information were then joined to the respective cities land use and proposed zoning plan parcel data. A query was created that selected parcels that had a tax rate of 9.9% to 10.2%. Another query was created that selected parcels where tax rates were 14.9% to 15.2%. These queries were then compared to the parcels that needed to be verified to see if by using the tax rate, the parcels could be verified as residential or commercial. According to Mississippi tax law, parcels that contain single family residential homes are taxed at a 10% rate and all other real property, including commercial and business, are taxed at 15% (Mississippi Department of Revenue *n.d.*). Parcels that did have a 10% or 15% tax rate were considered verified as residential or businesses.

An analysis was done to determine the total amount that the city would have to pay in order to buy out the parcels for zoning changes. The land use parcel data included the total value of the parcel. The total value was the land value plus improvement value. The statistics tool in the attribute table was used in order to obtain a total cost of all parcels that would need to be bought. This calculation was done for Long Beach and D'Iberville.

An analysis focused on just downtown Long Beach in order for a more accurate comparison to downtown D'Iberville. This analysis was done by overlaying a .PNG image of the proposed zones of the downtown area that came from Long Beach's MCP over all of the parcel layers. Using the image, the layers Same as Proposed Zone, Different from Proposed Zone, Parcel Verification Needed, and Parcels Verified were selected. The total value of the parcels needed to be purchased out was also obtained.

Chapter 5: Results

Long Beach

Long Beach contains 7,693 parcels, the majority of which are Residential from current land use and T3 from the proposed zone (Tables 3 & 4). Figure 5 contains a map of Long Beach that shows the parcels classified according to the proposed zone. After the analysis was run, residential areas such as T3 and T4 had the most implemented from the proposed zone, while civic space areas had the least. Long Beach had 1,485 parcels that needed to be verified (Table 5). Figure 6 is a map of the parcels where land use matches the proposed zoning, parcels where land use does not match the proposed zoning, and the parcels that need to be verified. From the parcels that needed to be verified, 96 were in the 10% residential tax class, and 1,240 parcels were in the 15% tax class (Table 6). There were 149 parcels that could not be verified and so they were considered to not match the proposed plan. Figure 7 contains a map that shows the parcels final classification based on their adherence to the proposed plan. It was found that to buy out all of the parcels where the zone needed to be changed would cost approximately $91,254,227. To buy out parcels to convert them to Civic Space areas would cost $12,680,776.

Downtown Long Beach

For downtown Long Beach, there were a total of 652 parcels, and from these parcels, 241 needed to be verified (Figure 8). The proposed zoning in downtown Long Beach that had the most parcels was the T4 (3) zone at 196 (Table 7). Downtown was

also the proposed area that had the most parcels that did not match the proposed zone with 131 parcels; after parcel verification, the number of parcels that did not match T4 (3) was 17. The proposed zone that had the most parcels that did not match was Civic Space at 64 parcels after all parcels were verified. The 64 parcels were all the Civic Space parcels in the downtown area (Table 8). Figure 9 contains a map that shows the parcels final classification based on their adherence to the proposed plan. In the downtown area, it would cost Long Beach $8,195,750 to be able to buy all of the parcels, and would cost $7,151,858 to buy only the parcels that needed to be converted to Civic Space.

D'Iberville

For D'Iberville, there were a total of 672 parcels. The majority of the parcels are Land & Forest from current land use and Low Density Residential from the proposed zone (Tables 9 & 10). Figure 10 contains a map of D'Iberville that shows the parcels classified according to their proposed zone. Analysis showed that the residential areas are the most implemented from the proposed plan and the goods and services areas (such as Business) are the least implemented (Table 11). D'Iberville had 229 parcels that needed to be verified. Figure 11 is a map of the parcels' land use that match the proposed zoning, the parcels' land use that did not match the proposed zoning, and parcels that needed to be verified. From the parcels that need to be verified, nine of them were in the 10% residential tax category and 214 of the parcels were in the 15% tax rate category (Table 12). There were six parcels that could not be verified and so it was considered that they did not match the proposed plan. Figure 12 contains a map that shows the parcels final

classification based on their adherence to the proposed plan. The total cost for the city to buyout all of the parcels where zoning needed to be changed would cost $26,952,724, and to buy out just the Hotel/Casino areas would cost $4,410,246. Tables 13, 14, and 15 have the final results for Long Beach, Downtown Long Beach, and D'Iberville, respectively.

Chapter 6: Problems

One complication encountered was the quality of the Master Concept Plans. The low-quality images may have had an effect when geo-referencing the MCPs with the land use parcel data. Another issue that arose was that the MCPs did not exactly line up with the land use parcel data. The MCPs were drawn to scale very well, but there were some parts that did not line up with the parcel data and this misalignment required inference when selecting what proposed zone the parcel was categorized (Figure 13).

Another problem is with the tax code; if the parcel has a tax rate of 10%, then it typically is residential. A parcel with a 15% tax rate can be either an empty lot in a residential zone or zoned as commercial (Mississippi Department of Revenue *n.d.*). Properties from the land use data such as Commercial, Services, and Utilities are taxed at 15%. Empty lots may be in a residential zone, but if there is not a house located on the property, then the parcel is taxed at 15%. However, for the purpose of this study, if the tax rate is 15% and was not a commercial property, it was considered that in the future a house could be built and the tax rate could change. To take this into account, the maps show if the verified parcel is taxed at 10% or 15%. For analysis purposes, parcels that

were verified were considered separate from land use parcels that matched the proposed zone and land use parcels that did not.

Chapter 7: Discussion

Long Beach has yet to implement official smart code. Long Beach has modeled their downtown area with new urbanism principles such as mixed-use, walkability, and open space. However, Long Beach has not implemented official t-zones here. D'Iberville has implemented smartcode (as they spell it in the zoning map) downtown, but not anywhere else in the city (City of D'Iberville 2013). The downtown area is not even broken down into t-zones. The official zoning ordinance only has a few sentences dedicated to t-zones, but has whole pages dedicated to different types of residential and commercial zones (City of D'Iberville 2012). The lack of these t-zones shows how unrealistic the plans are because both cities showed such strong interests in changing to smart code and smart growth zoning ordinances but have yet to do so even eight years after Hurricane Katrina.

For Long Beach, most of the parcels' current land use matched the proposed zoning changes, including the residential areas. It is evident that when the MCP was created, the location of the current residential and commercial areas was taken into account by the planning team. All of Long Beach has approximately 70% of the proposed plan implemented (87% if verified parcels are counted). The high percentage of the proposed plan implemented without taking verified parcels into account shows that for all of Long Beach, even the downtown area, land use in place soon after Hurricane Katrina

was taken into account when the plan was drawn out. The creating of plans around current zones that existed before Hurricane Katrina becomes even more apparent when one looks at residential areas and commercial areas, such as T3 and T5 (1).

Perhaps, because these plans were made shortly after Hurricane Katrina, the proposed education centers do not match current education zones. The location of where the damaged school would be rebuilt was speculation. The decision could have been made at a later date to build the damaged schools in other locations. In order to buy out all of the parcels for zoning changes, it would cost the city approximately $91 million. The annual revenue for the fiscal year October 2013- September 2014 is approximately $17 million (City of Long Beach 2013). The $91 million to buy out all of these parcels is more than Long Beach even has in revenue. Even if developers buy out the majority of the parcels that do not match the proposed zoning and pay to convert them themselves, Long Beach still has to buy out parcels that are considered civic space from owners; this includes abandoned parcels. The total to buy out the parcels for civic space would be $12 million (70% of Long Beach's revenue), which is improbable because the city has to pay for a variety of things including salaries for employees, infrastructure upkeep, and current debt.

Long Beach has yet to implement official t-zones; however, they do have a downtown area that is similar to a new urbanism zone. Downtown Long Beach was designed to be walkable with small streets to discourage car usage. There is a community green space located in the center. Businesses are located all along the street with living quarters on top of some of the buildings. All of the buildings have a similar architectural design making the whole area feel like one small community. There are 652 parcels in

downtown Long Beach, in which 278 matched the proposed zone, 374 did not, with 291 parcels that needed to be verified. T4 (3) has the most amount of parcels that did not match the proposed zone originally, but dropped from 131 down to 17 after parcel verification. The other residential areas and commercial areas such as T3 and T5 (1) also had parcels that did not match the proposed zone; however, the number of unmatched parcels dropped after verification. This drop can be attributed to the fact that these parcels sit along the beach front and were destroyed by Hurricane Katrina's water surge. The cost of rebuilding and higher insurance prices has prevented people from building on these parcels. The empty lots were categorized as Land & Forest in the data, but tax rates showed that these parcels could have single family houses or commercial businesses built on them. After parcel verification, the proposed zone with the majority of parcels that did not match was Civic Space. A total was found to be around $7 million to buy out the parcels to convert them to Civic Space. That means that in the downtown area alone, to be able to buy out the Civic Space parcels would be 40% of Long Beach's revenue, and that total does not take into account landscaping and other requirements for a Civic Space area.

Something interesting to note with D'Iberville is there are 202 parcels' land use that match the proposed zone, 247 parcels' land use that do not match the proposed zone, and 223 parcels that were verified. Part of the reason for this three-way spilt can be attributed to the fact the study area was completely destroyed by Hurricane Katrina and has yet to be fully rebuilt. Most of these empty parcels are currently categorized as Land & Forest in the land use data, even though they are zoned as residential or commercial, which means single family houses or commercial buildings could be built on these

parcels in the near future. Taking the verified parcels into account shows that approximately 63% of the proposed plan has been implemented. Most of the proposed zone areas that have not been implemented are the Hotel/Casino zones. To implement this part of the proposed plan would require expensive buyout and cooperation from local residents. Recently, the gaming commission of Mississippi voted to allow a developer to build the Scarlet Pearl Casino Resort along the Back Bay area in the city of D'Iberville, which is where the Hotel/Casinos areas are in the proposed plan (WLOX 2014). However, other than the recent development of this casino, D'Iberville has yet to build any areas that could be considered smart growth or new urbanism. In order to implement zoning changes on all parcels that did not match would cost D'Iberville around $26 million, and $4 million to convert parcels to Hotel/Casino areas. The Hotel/Casino area alone is a significant amount of money for the city to spend on parcels.

One thing in common between the two cities is the MCPs tended to match the zones that were already in place and did not really attempt to restructure the cities to new urbanism or smart growth. Long Beach's proposed zones T3 through T4 (3), which are residential t-zones, line up very well with residential zones that existed right after Hurricane Katrina. The same goes for D'Iberville with the Low Density Residential and High Density Residential areas. The work around current parcels show that the planners worked around current zoning in order to save on costs which could lessen the effect smart growth and new urbanism have on urban sprawl along the Gulf Coast. When the verified parcels were taken into account, the two areas that tend not to change are the Green Areas/Civic Spaces from Long Beach and the Hotel/Casino areas from D'Iberville. Both of these areas are expensive to implement because the parcels have to be purchased

from the current owners and design requirements have to be followed when building on them.

Another commonality between the two cities is that the downtown areas had a lot of parcels that needed to be verified (291 in Long Beach and 227 in D'Iberville) which amounted to at least 1/3 of the parcels in each city. One reason for this could be that the empty parcels, or parcels damaged by storms, land use was considered Land & Forest. The high amount of Land & Forest land use suggests that the downtown areas are also not being rebuilt after being damaged or destroyed Hurricane Katrina. Downtown Long Beach has implemented 42% of the plan (84% if the verified parcels are counted) and downtown D'Iberville has implemented 30% of the proposed plan (63% if taking verified parcels into account). Even when only considering the downtown areas, Long Beach is implementing more of the plans.

One limitation that could prevent full accuracy of this study is lack of up-to-date data. Current property owners and land values are always changing, and the latest land use study was completed in 2012. This research was completed two years later. Another limitation is the quality of the Master Concept Plans. The plans could only be stretched to a certain size before becoming pixelated. The pixilation could affect the outline of the area, which in turn affected how parcels were coded. In the future, a similar analysis should be conducted that compares the proposed zones to zoning pre-Hurricane Katrina and post-Hurricane Katrina. This comparison will allow for a deeper analysis about zoning change, such as if the parcel changed to a zone that was different from both pre-Katrina and the proposed plan. Another study that would be helpful is to question citizens living on the Mississippi coast about their understanding and feelings of smart growth

and new urbanism to see if there is any resistance or acceptance to these sustainable growth ideas.

Chapter 8: Conclusion

Smart growth and new urbanism were created to help prevent urban sprawl. These two ideas aim to bring back a sense of community, walkability, and access to open sprawl through land use requirements and architectural requirements. The goals of smart growth and new urbanism are why Haley Barbour wanted to include them in recovery plans that were created shortly after Hurricane Katrina. The MCPs were created in such a way that allowed for the coast to build back better than pre-Katrina conditions and to allow for sustainable growth.

Smart growth and new urbanism are good ideas, in theory. If they were not, states such as Maryland and Oregon, and towns such as Seaside, Florida, and even Long Beach and D'Iberville would not try to implement them (Daniels 2001; Haeuber 1999; Seaside *n.d.*). However, they are not yet fully working as planned in these cities. In Maryland, developers keep jumping outside of Priority Funding Areas to avoid perceived nuisance development requirements (Lewis, *et. al*. 2009). Seaside's housing prices are expensive when there was supposed to be a variety of prices and even the creator of the town admits it (Yancey 2012). Smart growth and new urbanism are not yet working on the Mississippi Coast either.

The reality is these plans are not fully being implemented, which weakens them as concepts. The first fact to note is that smart code, and smart growth principles in general,

have not been added to any zoning ordinances in Long Beach, and have only been added to downtown D'Iberville, and not with very much detail. The lack of code implementation in Long Beach and the small area in D'Iberville show that helping prevent sprawl is not necessarily a goal of the plans. Another thing to take notice between the two cities is that the MCPs, especially residential areas, were created in such a way that the proposed plans matched the current zoning at the time of Hurricane Katrina. This work around means instead of working to change the sprawl, the city's designers and planners just worked with current sprawl.

It seems that in Long Beach, the areas from the proposed zone that are not being implemented are the Civic Space areas which can be attributed to the fact that these parcels are expensive for the city to buy out; the downtown area alone would be 40% of the budget. The proposed plan areas from D'Iberville that are not being implemented tend to be the Hotel/Casinos areas. The lack of a current Hotel/Casino area can be attributed to the expense of buying out parcels (around $4 million), building the hotels, and some local resident resistance due to the not in my backyard (NIMBY) attitude. However, it has recently been announced that a casino was approved to be built along the Back Bay in D'Iberville, so the MCP is slowly moving forward.

The need for smart growth and new urbanism are apparent, but implementation of these plans is proving difficult and not feasible, and this study has shown the realistic expectations people can have from smart growth and new urbanism. It has been eight years after the storm and at this point, the main ideas such as mixed use areas and civic spaces have not been implemented. Long Beach has one spot in the downtown area that has implemented these ideas. Other than downtown Long Beach, the rest of the city is the

normal sub-urban city with large areas of low-density residential areas that remain car dependent. Downtown D'Iberville was so badly destroyed that most of the residents of the area are working on trying to rebuild, not worrying about implementing sustainable development plans. The rest of D'Iberville does not even have smartcode, and infrastructure is being built daily in these areas. However, the lack of implementation should not be a discouragement to stop urban sprawl. The ideas of environmentally friendly developments are in the citizens' thoughts. Over time, these ideas can grow and encourage more of the citizens to start accepting smart growth and new urbanism. In addition, the fact that it is now known these plans are not currently being implemented, government officials and city planners can work on other ways in which to implement sustainable development.

References

Ayers/Saint/Gross Architects and Planners and MacGuire Woods LLP and Hurley Franks Associates. "Long Beach, Mississippi Comprehensive Plan-October 2008." (2008). Accessed March 23, 2013. http://www.cityoflongbeachms.com/Planningzoning/smartcode/011310_LB_Final%20Comprehensive%20Plan%20ALL.pdf.

Bagtzoglou, Amvrossios, Kweku Brown, Maria Chrysochoou, Geeta Dahal, Norman Garrick, and Catalina Granda-Carvajal, Kathleen Segerson."A GIS and indexing scheme to screen brownfields for area-wide redevelopment planning." *Landscape and Urban Planning* 105, no. 3 (April 15 2012).

Banai, Reza. "Land Resource Sustainability for Urban Development: Spatial Decision Support System Prototype." *Environmental Management* 36, no. 2 (August 2005).

Beste, David. "Growing Pains: Maryland's Struggle to Introduce Smart Growth to a Growing Population." *University of Baltimore Journal of Environmental Law* (2010).

City of D'Iberville, MS. 2012. Zoning Ordinance. City of D'Iberville, MS, P.O. Box 6519, D'Iberville, MS 39540. Accessed June 01, 2014. http://diberville.ms.us/home/wp-content/uploads/2013/05/DIberville-Zoning-Ord-Jan-2012-Final-Adoption.pdf.

City of D'Iberville, MS. 2013. Zoning Map. City of D'Iberville, MS, P.O. Box 6519, D'Iberville, MS 39540. Accessed June 01, 2014. http://diberville.ms.us/home/wp-content/uploads/2013/09/zone_map_08-2013-Model-1.pdf.

City of Long Beach, MS. 2013. Adopted Budget FY 2013-2014. City of Long Beach, MS, P.O. Box 929, Long Beach, MS 39560. Accessed June 01, 2014. http://www.cityoflongbeachms.com/NEW%20WEBSITE/Adopted%20Budget%20FY%202013-2014.pdf.

Daniels, Tom. "Smart Growth: A New American Approach to Regional Planning." *Planning Practice and Research* 16, no. 3 (2001).

Downs, Anthony. "Smart Growth: Why We Discuss It More Than We Do It." *Journal of the American Planning Association* 71, no. 4 (Autumn 2005).

Duany, Andres and Emily Talen. "Making the Good Easy: The Smart Code Alternative." *Fordham Urban Law Journal* 29, no. 4 (2001).

Duany, Andres, William Wright, and Sandy Sorlien. *Smartcode*. 8th ed. New Urban Publications Inc., 2006.

Evans-Cowley, Jennifer and Meghan Zimmerman Gough. "'Evaluating New Urbanist Plans in Post-Katrina Mississippi." Journal of Urban Design 14, no. 439-461 (November 2009).

Garde, Ajay M. "New Urbanism as Sustainable Growth? A Supply Side Story and Its Implications for Public Policy." *Journal of Planning Education and Research* 24, no. 2 (December 2004).

Griffioen, Wendy. “Potential Costs of Implementing the Proposed Municipal Zoning Changes Post-Hurricane Katrina: A Case Study of Coastal Region Parcels in Long Beach, Mississippi.” Honors College Thesis, University of Southern Mississippi, November 2009.

Goldberg, David. *Choosing Our Community's Future: A Citizen's Guide to Getting the Most Out of New Development*. Smart Growth America. (2005).

Haeuber, Richard. “Sprawl tales: Maryland's Smart Growth Initiative and the Evolution of Growth Management.” *Urban Ecosystems* 3, no 2 (July 1999).

Hong, S. He, Timothy A. Nigh, John H. Schulz, and Bo Zhou. “Mapping and analyzing change of impervious surface for two decades using multi-temporal Landsat imagery in Missouri.” *International Journal of Applied Earth Observation and Geoinformation* 18. (August 2012).

Jordan, Elizabeth, and Amy Javernick-Will. “Indicators of Community Recovery: Content Analysis and Delphi Approach.” *Natural Hazards Review* 14. (2013).

Lewis, Rebecca, Gerrit-Jan Knaap, and Jungyul Sohn. 2009. “Managing Growth With Priority Funding Areas: A Good Idea Whose Time Has Yet to Come.” *Journal of the American Planning Association* 75, no. 4 (September 2009).

Lovejoy, Kristin, Susan Handy, and Patricia Mokhtarian. “Neighborhood Satisfaction in Suburban Versus Traditional Environments: An Evaluation of Contributing Characteristics in Eight California Neighborhoods.” *Landscape and Urban Planning* 97, no. 1 (30 July 2010).

Maryland Department of Planning. Smart Growth Legislation-1997 Priority Funding Areas Act. Maryland Department of Planning, 301 W. Preston Street, Suite 1101, Baltimore, MD 21201. Accessed April 27, 2014. http://www.mdp.state.md.us/OurWork/1997PFAAct.shtml.

Mississippi Department of Revenue. Property FAQ. Mississippi Department of Revenue, South Pointe Building Plaza, 500 Clinton Center Drive, Clinton, MS. Accessed June 01, 2014. http://www.dor.ms.gov/info/faqs/PropertyFAQ.pdf.

Mississippi Governor's Commission. "2005 Citizens Master Plan for D'Iberville, Mississippi." 2005. http://mississippirenewal.com/documents/Rep_D-Iberville.pdf.

Mississippi Renewal Forum: Summary Report. Gaithersburg: The Town Paper, (2005).

National Oceanic and Atmospheric Administration (NOAA). 2005. Hurricane Katrina: A Climatological Perspective. National Oceanic and Atmospheric Administration, U.S Department of Commerce, Asheville: NOAA. Accessed March 26, 2013. http://www.ncdc.noaa.gov/oa/reports/tech-report-200501z.pdf.

Preuss, Ilana, and Amanda W. Vemuri. "'Smart Growth' and Dynamic Modeling: Implications for Quality of Life in Montgomery County, Maryland." *Ecological Modelling* 171, no. 4 (1 February 2004).

Rogers, George, and Sineenart Sukolratanametee. "Neighborhood Design and Sense of Community: Comparing Neighborhoods in Houston Texas." *Landscape and Urban Planning* 92, no. 3 (30 September 2009).

Seaside. "History." Accessed April 28, 2014. http:// www.seasidefl.com/history/.

Sultana, Selima and Joe Weber. "The Nature of Urban Growth and the Commuting Transition: Endless Sprawl or a Growth Wave?" *Urban Studies* 51, no. 3 (August 19 2013).

Yancey, Kitty. "Florida's pastel paradise: Seaside celebrates 30 years." USA Today, September 28, 2012. http://travel.usatoday.com/destinations/story/2012/09/28/idyllic-seaside-is-still-in-the-pink-as-it-turns-30/57850178/1.

Walmsley, Anthony. "Greenways: multiplying and diversifying in the 21st century." Landscape and Urban Planning 76, no. 1-4 (30 April 2006).

Weitz, Jerry and Terry Moore. " Development inside Urban Growth Boundaries: Oregon's Empirical Evidence of Contiguous Urban Form." Journal of the American Planning Association 64, no. 4 (Autumn 1998).

WLOX. "Scarlet Pearl Casino about to become a reality in D'Iberville." Last modified June 27, 2014. http://www.wlox.com/story/25878457/scarlet-pearl-casino-about-to-become-a-reality-in-diberville.

Figures

Figure 1 - This map shows the new urbanism character of the town Seaside, Florida. The streets are in blocks and everything is radiating out from the center of the town. http://30apropertysearch.com/wp-content/uploads/2013/04/SeasideMap_1.jpg

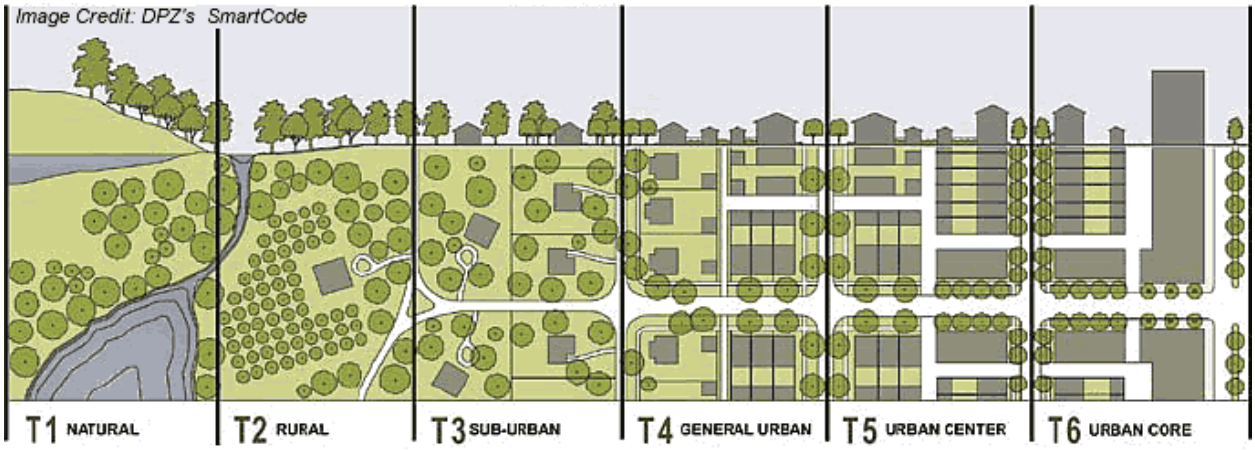
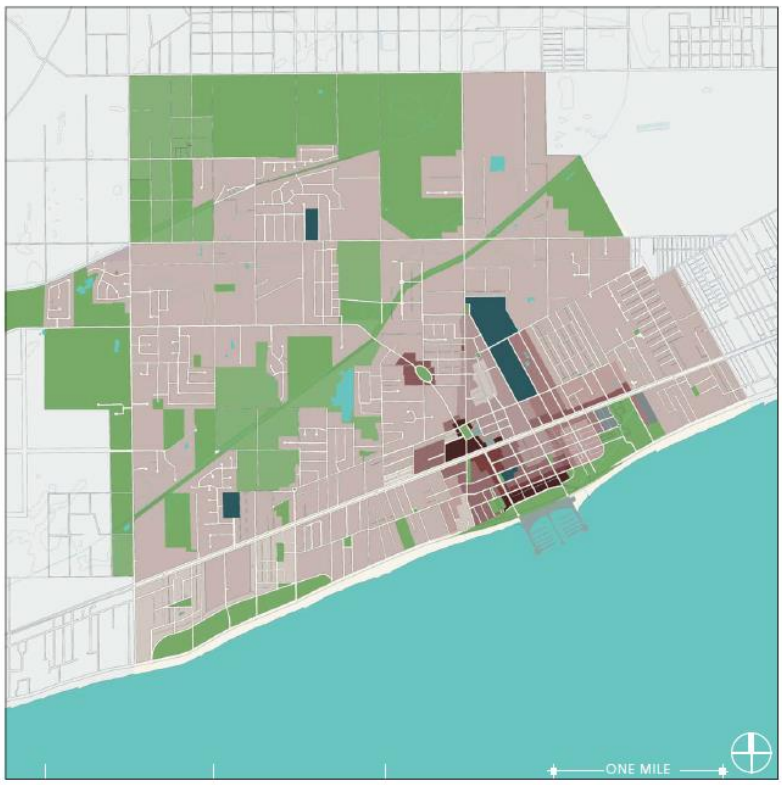


Figure 2– The t-zones from Smart Code. The zones range from completely natural to completely urban, from T1 to T6, respectively.
http://catalystarchitecture.com/SKETCH_PAD/Content/08/09/News/3b.gif



PROPOSED TRANSECT DIAGRAM*

PROPOSED TRANSECT DIAGRAM*

T1 - Preserve / Natural
T2 - Reserve / Rural
T3 - Sub-Urban
T4-1 - General Urban
T4-2 - General Urban
T4-3 - General Urban
T5-1 - Urban Center
T5-2 - Urban Center
CS - Civic Space
ED - Education District

** The Long Beach transect was calibrated by the Smart Code / Transect Committee. More information can be found on page 55.*

Figure 3– The Master Concept Plan of Long Beach, Mississippi. The green areas at the top represent T1 and T2 zones, while the green areas at the bottom represent civic spaces. The light brown parcels are T3, or residential areas. The darkest color parcels are T5 parcels, or high density mixed land use. The blue parcels are education centers. http://mississippirenewal.com/documents/Post_Long_Beach_Masterplan_Book.pdf

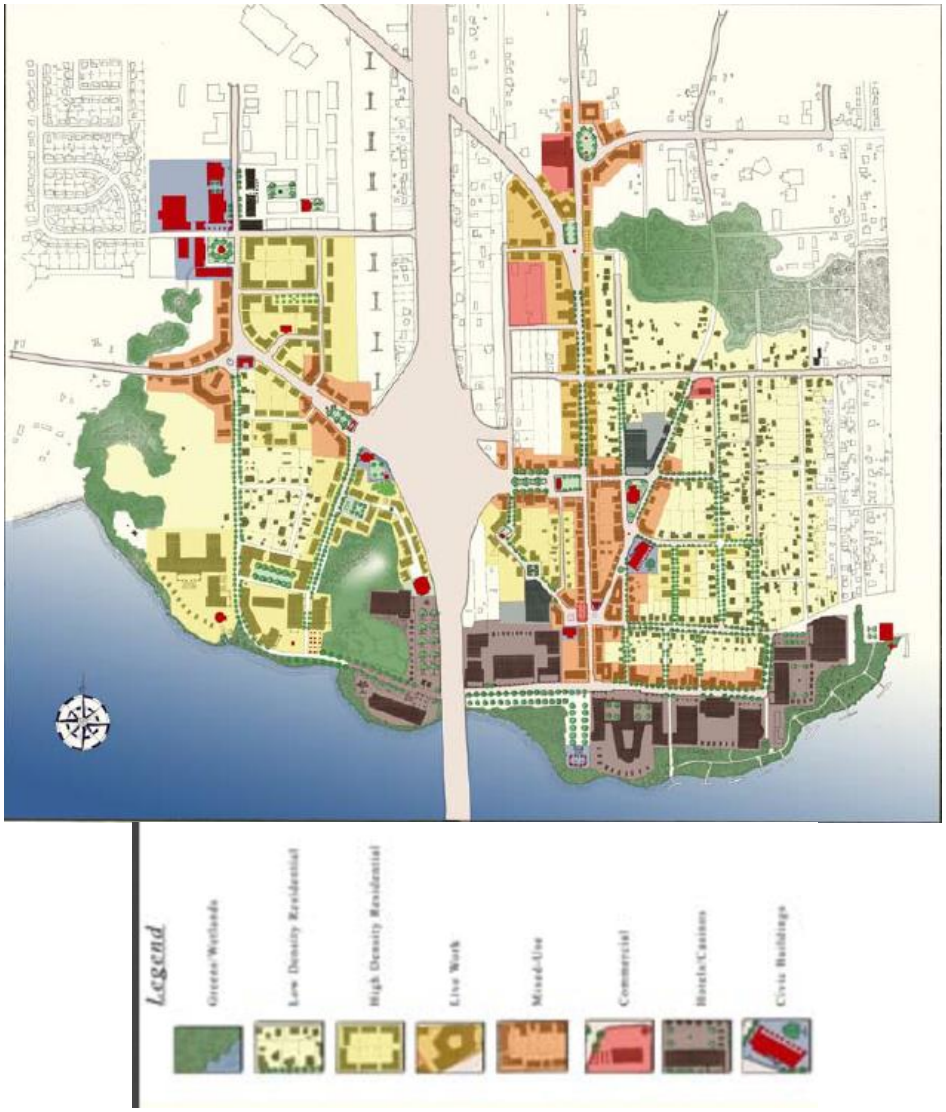


Figure 4- The Master Concept Plan of D'Iberville, Mississippi. The hotel/casinos are located along the waterfront. The light yellow parcels and dark yellow parcels are LDR and HDR. The blue and red parcels are civic buildings.
http://mississippirenewal.com/documents/Rep_D-Iberville.pdf

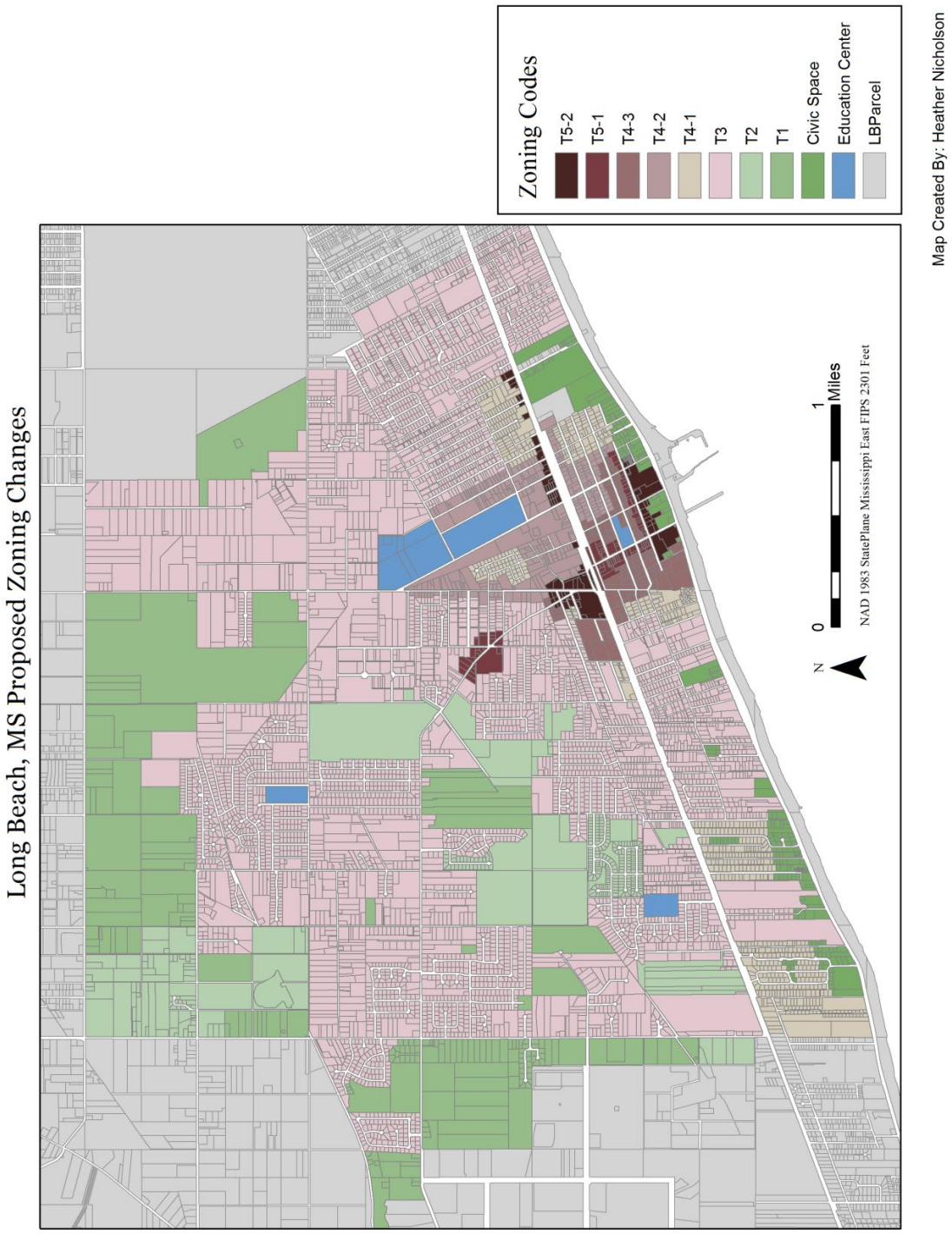


Figure 5- The parcels' proposed zones based from the MCP for Long Beach, Mississippi.

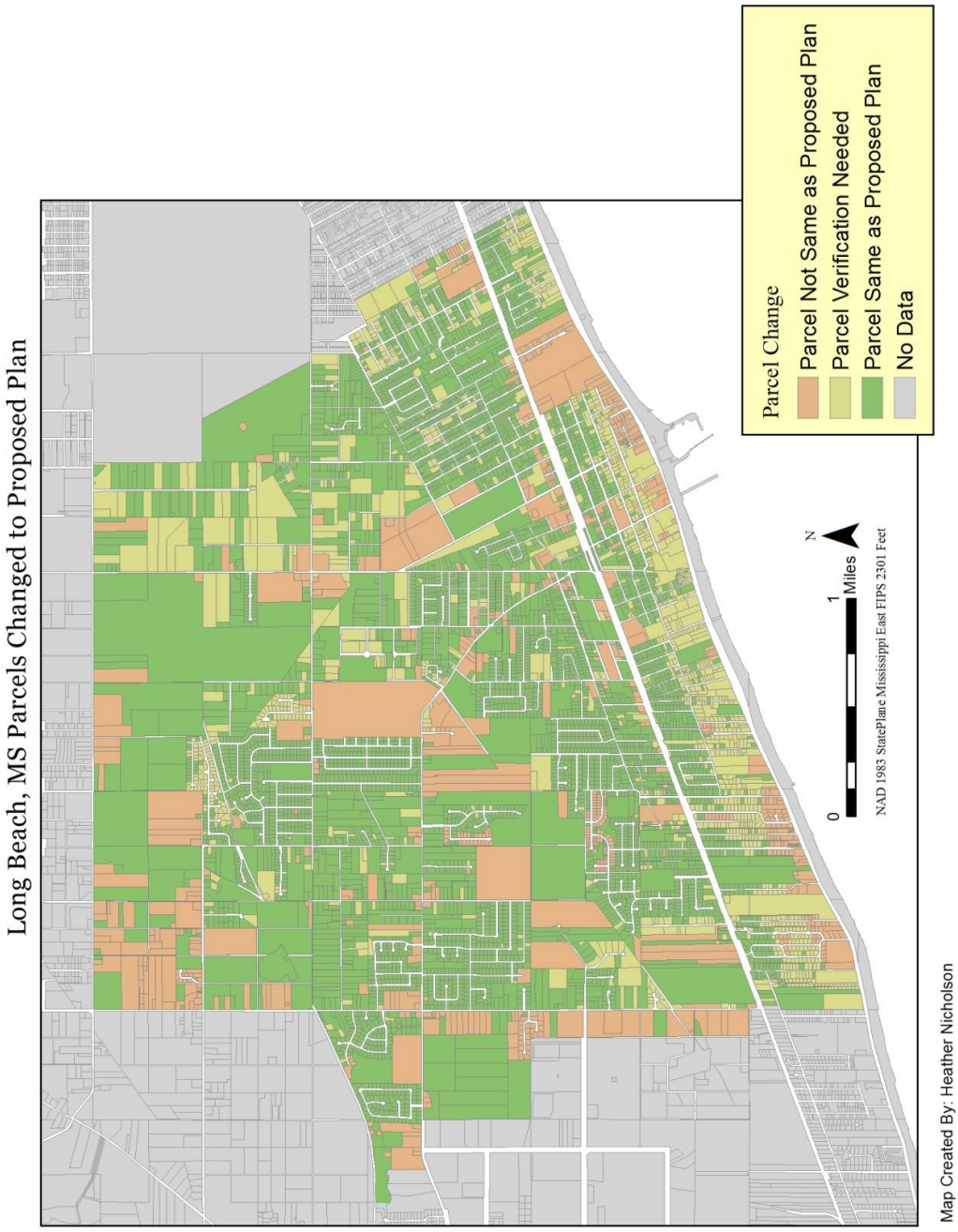


Figure 6 – The parcels in Long Beach where current land use match the proposed zoning, and the parcels that need to be verified. The parcels that match the proposed zoning are mainly in the residential areas, while the parcels that do not match the proposed zoning are civic spaces and T5.

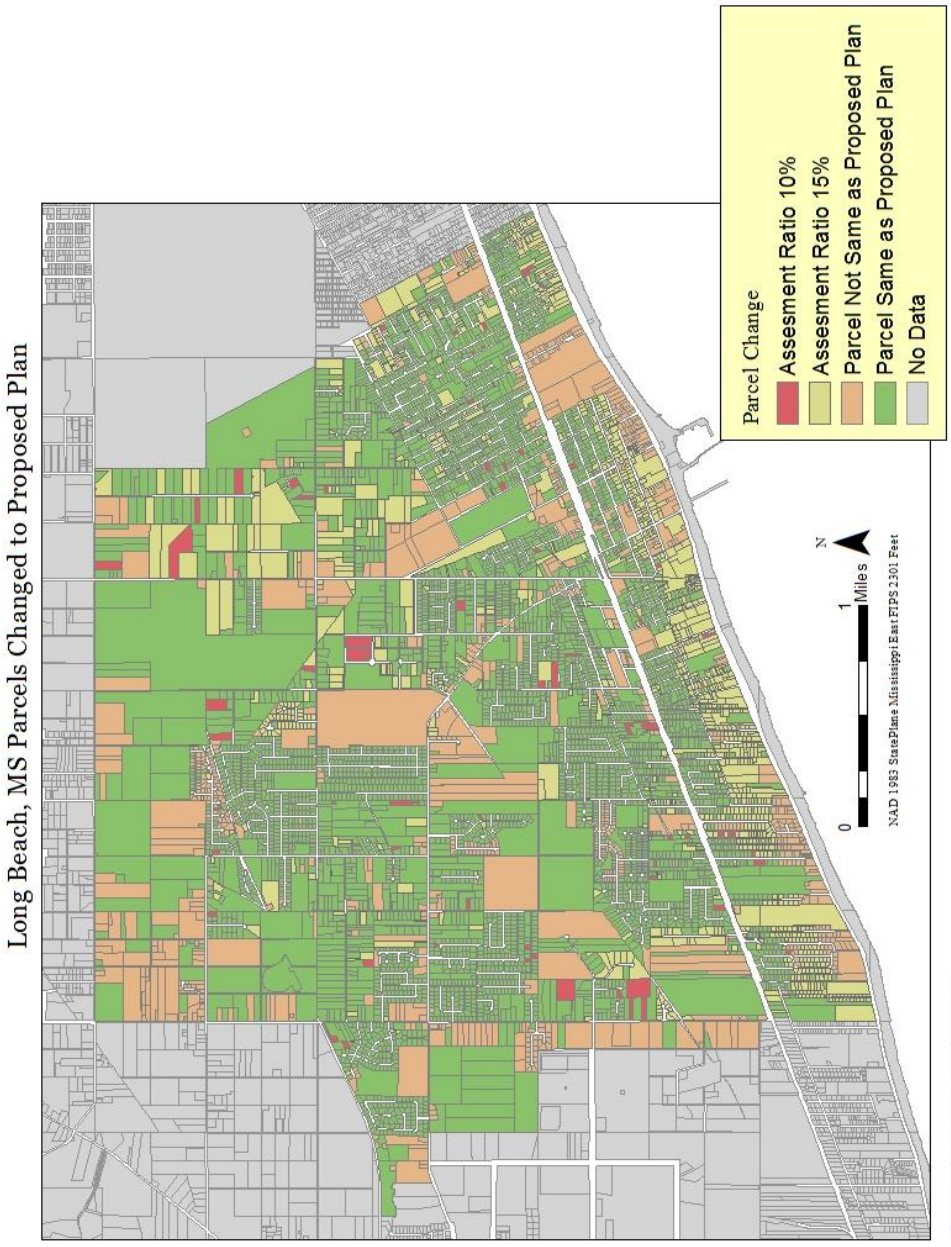


Figure 7- A map showing parcels that match the proposed zoning, parcels that do not match the proposed zoning, and parcels that match the proposed zoning based upon their tax category in Long Beach. After parcel verification, the majority of residential and commercial areas were verified.

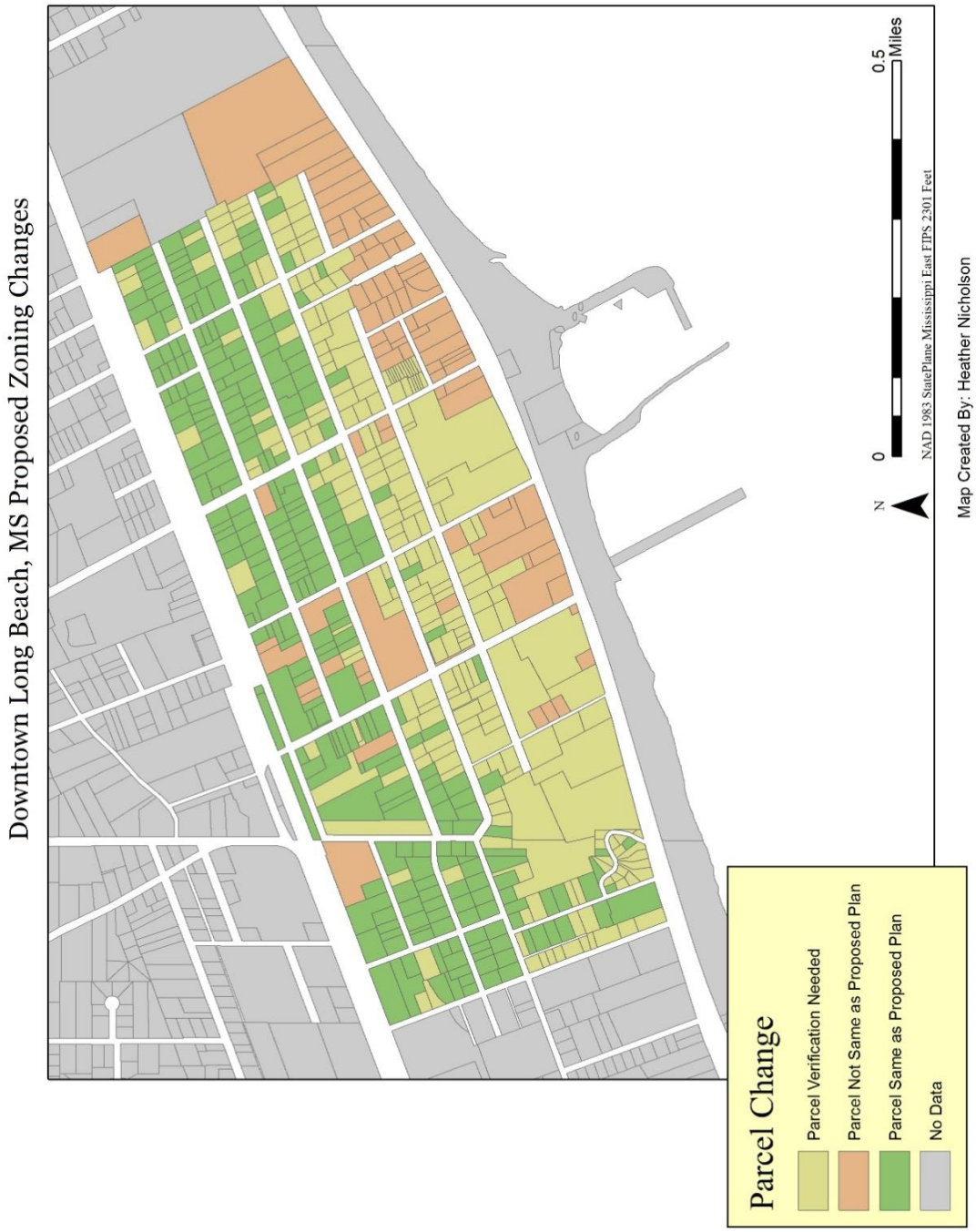


Figure 8 - The parcels in downtown Long Beach where land use match the proposed zoning, parcels where land use does not match the proposed zoning, and the parcels that need to be verified. The parcels that match the proposed zoning are mainly in the residential area T4 (3), while the parcels that do not match the proposed zoning are civic spaces.

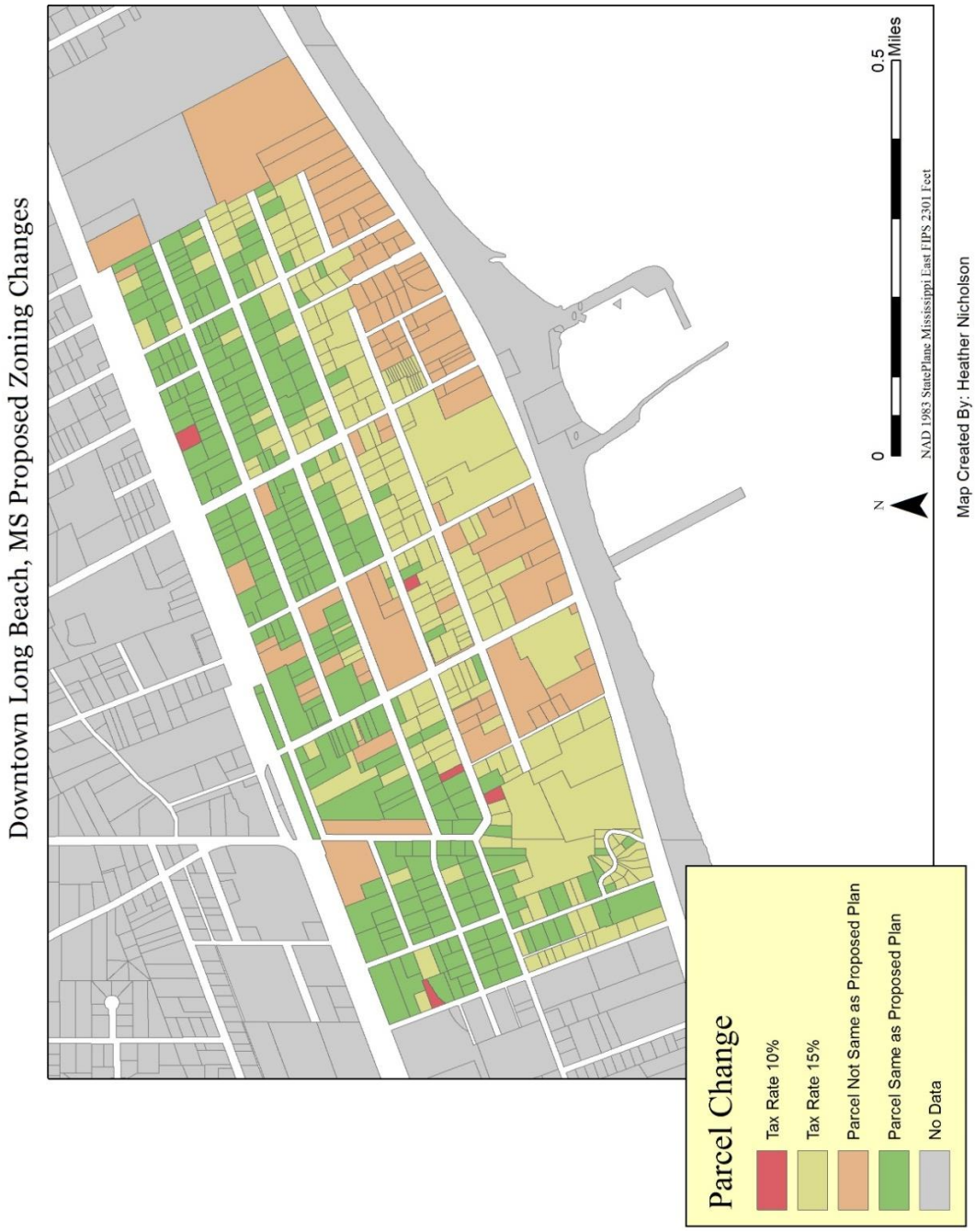


Figure 9 - A map showing parcels that match the proposed zoning, parcels that do not match the proposed zoning, and parcels that match the proposed zoning based upon their tax category in downtown Long Beach. After parcel verification, the majority of residential and commercial areas were verified. Civic Spaces, which sit along the waterfront, are the majority of parcels that do not match the proposed zoning.

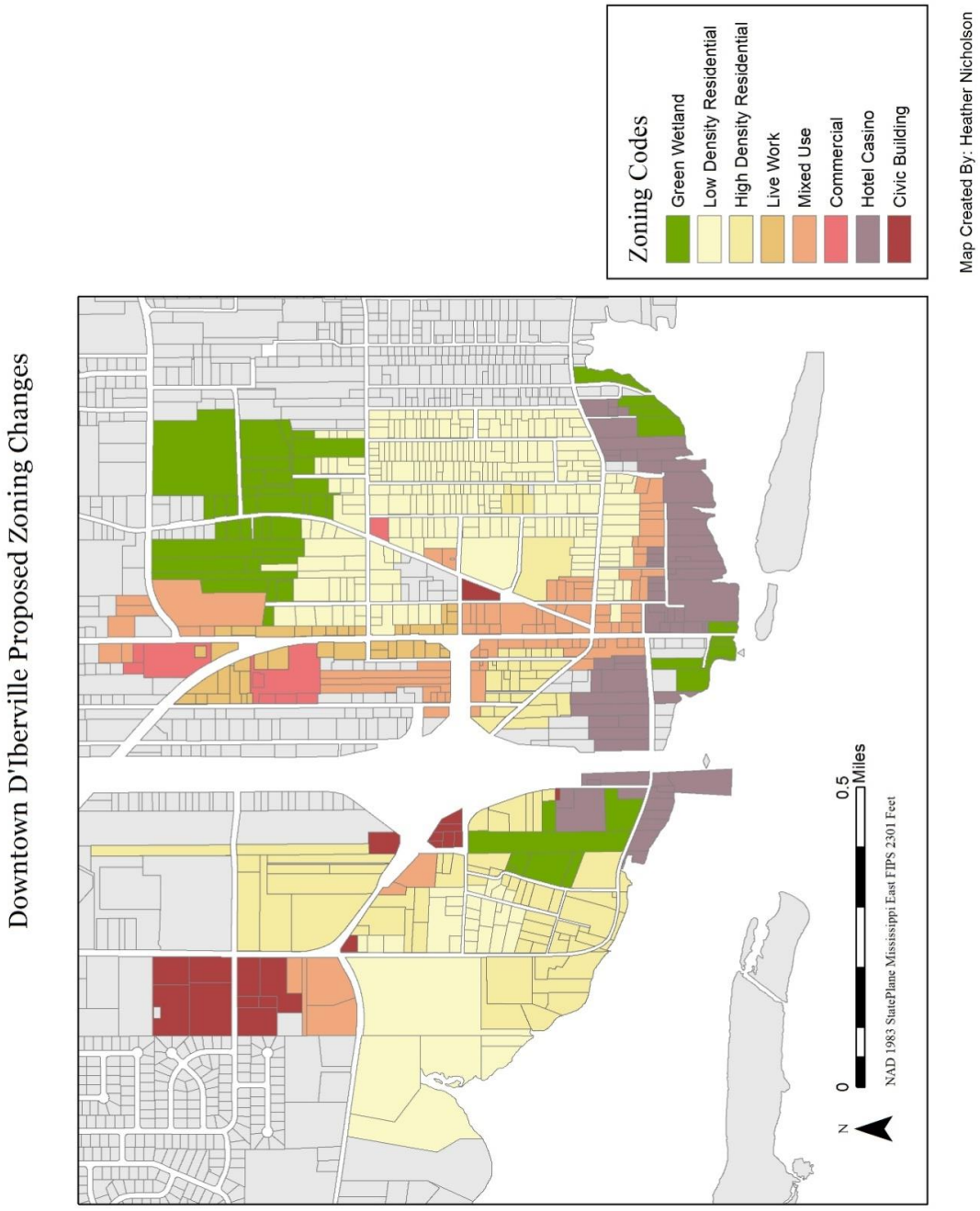


Figure 10- Parcels' proposed zones based upon the MCP for D'Iberville, Mississippi.

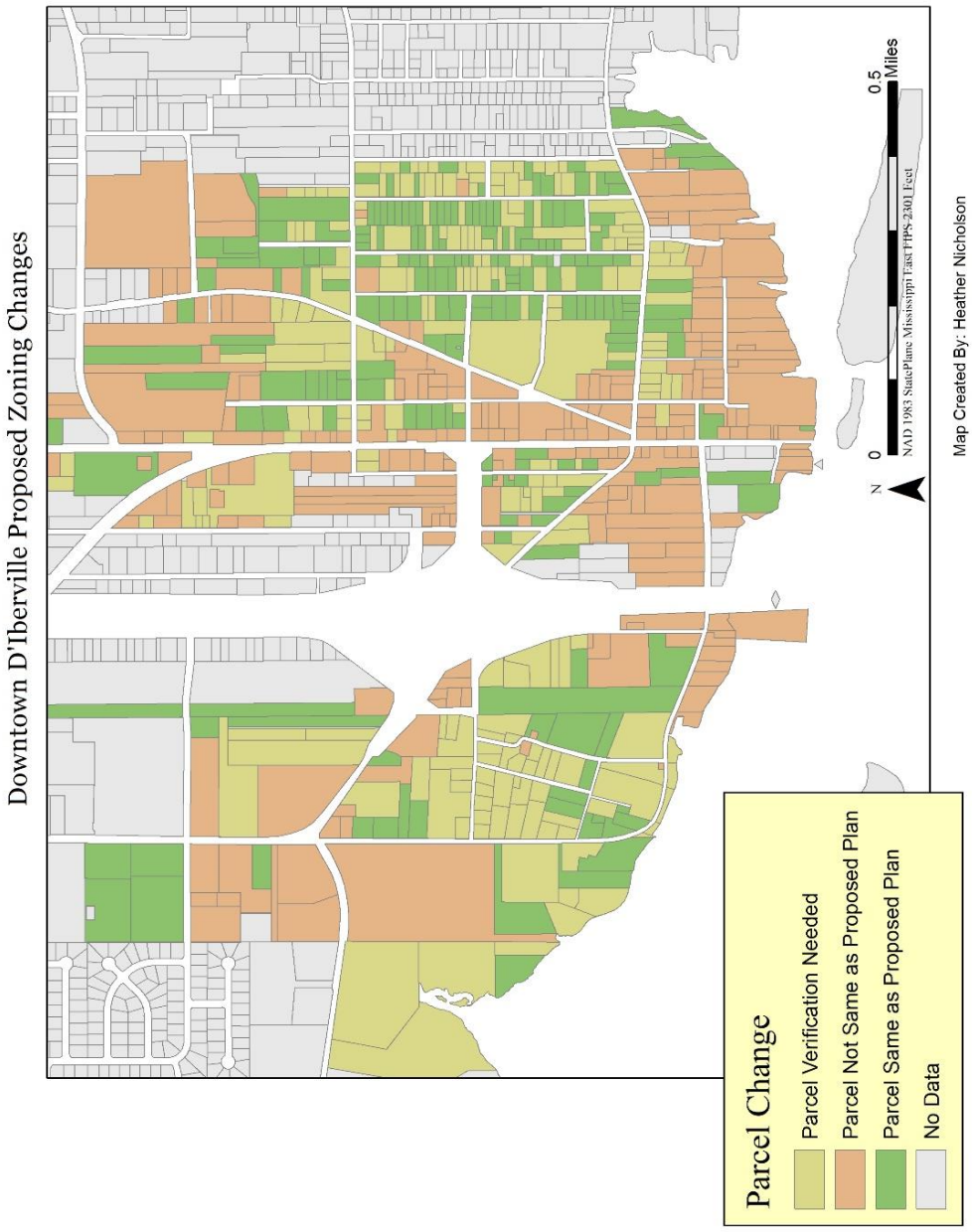


Figure 11 – Parcels in D'Iberville, MS where current land use match the proposed zoning, and the parcels that need to be verified. The majority of the parcels that do not match the proposed zone are hotel/casinos, and the majority that do match are residential areas. However, 227 parcels needed to be verified which is why this map appears as it does.

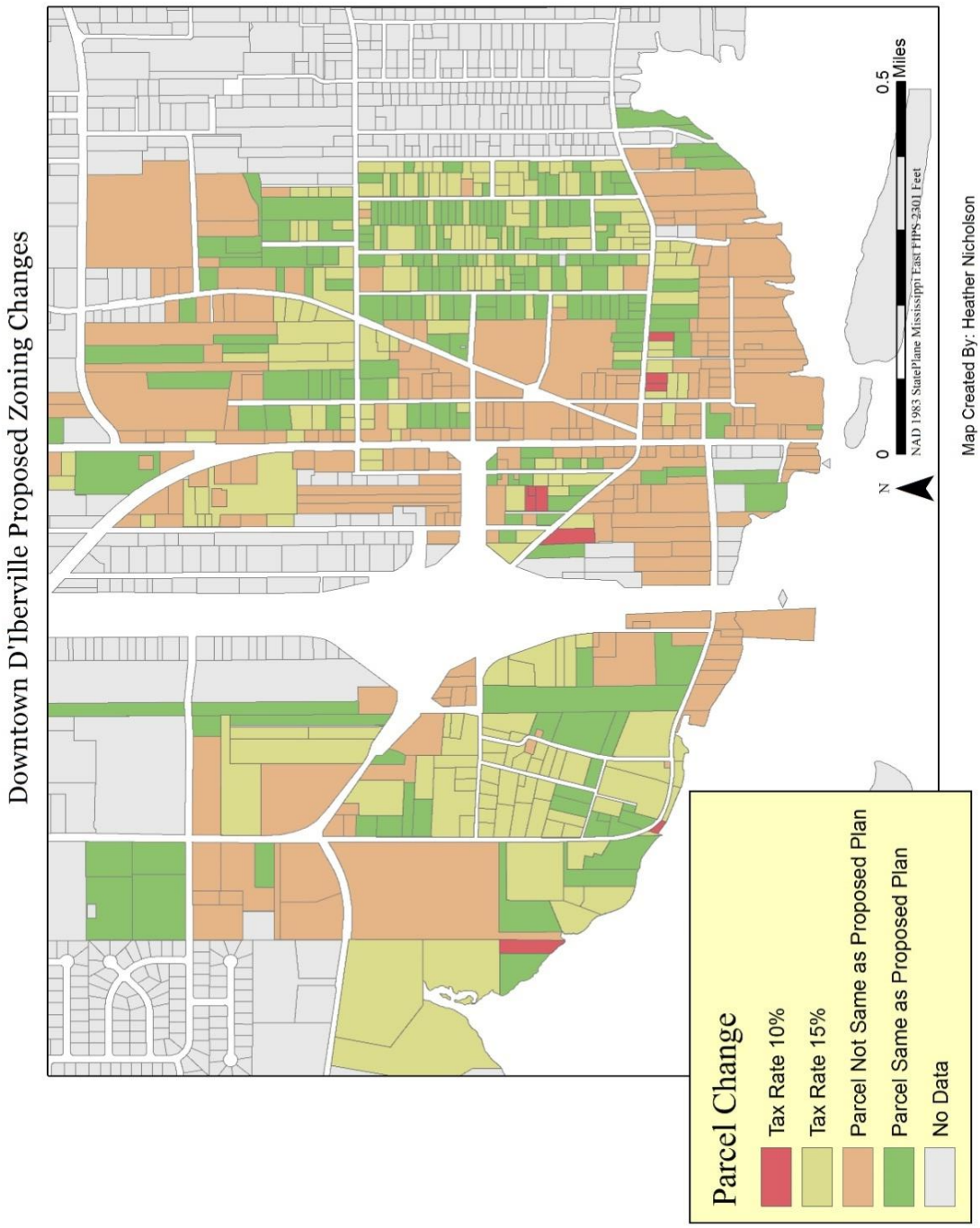


Figure 12 - A map showing parcels that match the proposed zoning, parcels that do not match the proposed zoning, and parcels that match the proposed zoning based upon their tax category in D'Iberville, MS.

Figure 13 – The interior of the circle displays how the master concept plan did not fully line up with the parcels at times.

Tables

Land Use Parcel Data (Field: Category)	Coding Number	Proposed Change
Agriculture **Land & Forest**	**1**	T1 T2
Camp & Resort **Cultural & Parks** **Recreation & Entertainment**	**2**	CS
Residential	**3**	T3 T4 (1) T4 (2) T4 (3)
Commercial **Utility & Communications** **Government** **Services** **Medical** **Manufacturing** **Religion**	**4**	T5 (1) T5 (2)
Education	**5**	Education
Uncategorized	**6**	None
None	**7**	Not Available

Table 1- This table shows the conversion codes for Long Beach, Mississippi.

Land Use Parcel Data (Field: Category)	Coding Number	Proposed Change
Camp & Resort **Recreation & Entertainment** **Land & Forest**	**1**	Green/Wetlands
Commercial **Utility & Communication**	**2**	Commercial
Residential	**3**	High Density Residential (HDR) Low Density Residential (LDR) Live/Work
Services **Religion** **Medical** **Transportation** **Government**	**4**	Mixed Use Hotel/Casino Civic Building
None	**5**	Not Available

Table 2 – This table shows the conversion codes for D'Iberville, Mississippi.

Land Use Parcel Data Count for Long Beach, Mississippi	
Uncategorized: 1	**Manufacturing:** 1
Agriculture: 2	**Medical:** 22
Camp and Resort: 2	**Recreation and Entertainment:** 9
Commercial: 89	**Religion:** 31
Cultural and Parks: 3	**Residential:** 5426
Education: 30	**Services:** 105
Government: 10	**Transportation:** 13
Land and Forest: 1921	**Utilities and Communication:** 28
Total:	7693

Table 3-The above chart contains the number of parcels currently based on the category from the land use parcel data for Long Beach, Mississippi.

Proposed Zone Parcel Count for Long Beach, Mississippi	
T-Zone 1: 191	**T-Zone 5(1):** 103
T-Zone 2: 341	**T-Zone 5(2):** 101
T-Zone 3: 5323	**Education: 11**
T-Zone 4(1): 797	**Civic Space:** 297
T-Zone 4(2): 299	**No Data Available:** 14
T-Zone 4(3): 214	
Total:	7693

Table 4-The above chart contains the number of parcels based on the proposed zoning. A map showing the proposed zoning changes for Long Beach can be seen in Figure 5.

Zones	Parcels that Match Proposed Zoning	Parcels that Do Not Match Proposed Zoning	Parcels that need to be Verified
T-Zone 1	72	119	x
T-Zone 2	165	176	x
T-Zone 3	4261	1064	931
T-Zone 4(1)	476	321	312
T-Zone 4(2)	234	65	39
T-Zone 4(3)	75	139	125
T-Zone 5(1)	43	60	36
T-Zone 5(2)	34	67	42
Education	3	8	x
Civic Space	1	296	x
No Data Available	0	14	x
Total:	5364	2329	1485

Table 5- The number of parcels matching and not matching the proposed zones, plus the parcels needing to be verified for Long Beach, Mississippi.

	Tax Rate 15%	Tax Rate 10%	Total Tax Rate Parcel Verified	New Total of Parcels that Do Not Match Proposed Zone
T3	725	81	806	258
T4(1)	298	8	306	15
T4(2)	31	4	35	30
T4(3)	112	3	115	24
T5(1)	35	0	35	25
T5(2)	39	0	39	28
Total:	1,240	96	1,336	

Table 6 - The number of verified parcels for Long Beach in each category, and the new amount for parcels not matching the proposed zones. There is no final total for the number of parcels not matching the proposed zones because the verified parcels only take into account residential and commercial areas, and not other proposed zones such as Civic Space or Education Centers.

Zones	Parcels that Match Proposed Zoning	Parcels that Do Not Match Proposed Zoning	Parcels that need to be Verified
T-Zone 1	0	64	x
T-Zone 2	0	1	x
T-Zone 3	21	0	3
T-Zone 4(1)	85	0	74
T-Zone 4(2)	82	3	17
T-Zone 4(3)	65	74	124
T-Zone 5(1)	25	19	36
T-Zone 5(2)	0	131	37
Education	0	44	x
Civic Space	0	38	x
Total:	278	374	291

Table 7- The number of parcels that match and do not match the proposed zones, plus the parcels that need to be verified for downtown Long Beach, Mississippi.

	Tax Rate 15%	Tax Rate 10%	Total Tax Rate Parcel Verified	New Total of Parcels that Do Not Match Proposed Zone
T3	2	1	3	0
T4(1)	74	0	74	0
T4(2)	14	1	15	4
T4(3)	11	3	114	17
T5(1)	35	0	35	9
T5(2)	35	0	35	3
Total:	271	5	276	

Table 8- The number of verified parcels for downtown Long Beach in each category, and the new amount for parcels not matching the proposed zones. There is not a final total for the number of parcels not matching the proposed zone because the verified parcels only take into account residential and commercial areas, and not other proposed zones such as Civic Space or Education Centers.

Land Use Parcel Data Count for D'Iberville, Mississippi	
Camp and Resort: 1	**Religion:** 4
Commercial: 46	**Residential:** 202
Government: 9	**Services:** 31
Land and Forest: 360	**Transportation:** 11
Medical: 2	**Utilities and Communication:** 2
Recreation and Entertainment: 4	
Total:	672

Table 9- The above chart contains the number of parcels currently based on the category from the land use parcel data for D'Iberville, Mississippi

Proposed Zone Parcel Count for D'Iberville, Mississippi	
Civic Building: 19	**High Density Residential:** 97
Hotel Casinos: 60	**Low Density Residential:** 286
Commercial: 9	**Green Wetlands:** 55
Mixed Use: 92	**Not Available:** 13
Live Work: 41	
Total:	672

Table 10-The number of parcels based on the proposed zoning. A map showing the proposed zoning changes can be seen in Figure 8.

Zones	Parcels that Match Proposed Zoning	Parcels that Do Not Match Proposed Zoning	Parcels that need to be Verified
Civic Building	4	15	x
Hotel Casinos	3	57	x
Commercial	2	7	4
Mixed Use	9	83	x
Live Work	2	39	11
High Density Residential	31	66	57
Low Density Residential	123	163	155
Green Wetlands	28	27	x
Not Available	0	13	x
Total:	202	470	227

Table 11- The number of parcels matching and not matching the proposed zones, plus the parcels needing to be verified for D'Iberville, Mississippi.

	Tax Rate 15%	Tax Rate 10%	Total Parcel Tax Rate Verified	New Total of Parcels that Do Not Match Proposed Zone
High Density Residential	51	5	56	87
Live Work	11	0	11	28
Low Density Residential	148	4	152	11
Commercial	4	0	4	3
Total:	214	9	223	

Table 12- The number of verified parcels D'Iberville in each category, and the new amount for parcels that do not match the proposed zones. There is no final total for the number of parcels not matching the proposed zone because the verified parcels only take into account residential and commercial areas, and not other proposed zones such as Civic Space or Education Centers.

Long Beach Parcel	Parcels	Percentage
Same as Proposed Plan	5,364	69.73%
Different from Proposed Plan	993	12.91%
Parcel Verified Based off Tax Category	1,336	17.36%
Total:	7,693	100%

Table 13- The number of parcels and percentage of the total parcels matching the proposed zones, parcels not matching the proposed zones, and verified parcels for Long Beach, Mississippi.

Downtown Long Beach Parcel	Parcels	Percentage
Same as Proposed Plan	278	42.64%
Different from Proposed Plan	98	15.08%
Parcel Verified Based off Tax Category	276	42.33%
Total:	652	100%

Table 14- This table contains the number of parcels and percentage of the total parcels matching the proposed zones, not matching the proposed zones, and verified parcels for downtown Long Beach, Mississippi.

D'Iberville Parcel	Parcels	Percentage
Same as Proposed Plan	202	30.06%
Different from Proposed Plan	247	36.76%
Parcel Verified Based off Tax Category	223	33.18%
Total:	672	100%

Table 15- This table contains the number of parcels and percentage of the total parcels matching the proposed zones, not matching the proposed zones, and verified parcels for D'Iberville, Mississippi.